IN THE U.S. PATENT AND TRADEMARK OFFICE

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Applicant:	Carl R. STEVENSON
Group Art Unit:	2617
Examiner:	Anthony S. Addy

Title:USE OF DOPPLER DIRECTION FINDING TO IMPROVE SIGNAL LINK PERFORMANCE IN A WIRELESS COMMUNICATION ENVIRONMENT

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APPELLANT'S BRIEF ON APPEAL

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APPELLANT'S BRIEF ON APPEAL

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 010486, Frame 0126.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 1-21 are pending in the application, with claims 1 and 8 being written in independent form.

Claims 1-21 remain finally rejected under 35 U.S.C. §103(a). Claims 1-21 are being appealed.

IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on September 5, 2007. In an Advisory Action dated September 27, 2007 the Examiner stated that the Request was considered but did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

(i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at methods and apparatuses for reducing the effects of deep "nulls" and deep "fading" that cause signals to become severely degraded which consequently prevents information within the signals from being correctly received. More specifically, independent claim 1 reads as follows (specification citations in parenthesis):

1. (Previously Presented) A wireless communication system, comprising:

a plurality of antennas, configured to operate as a phased array, for use by one receiver (page 10, lines 13-16)**;**

a scanner adapted to scan through the plurality of antennas (page 11, lines 21-24) **to at least substantially eliminate multipath nulls** (page 12, lines 5-8) **and provide a signal received from each of the plurality of antennas to the receiver** (page 19, lines 14-18) **and to impart Doppler modulation onto a received signal** (page 11, lines 25-29)**, wherein one or more of the received signals from the antennas are severely degraded; and**

a receiver having direction finding means for determining the bearing of a received signal in accordance with a phase thereof (page 13, lines 21-28)**, said received signal containing additional gain** (page 14, lines 5-10, page 20, lines 6-12 and page 21, lines 16-23)**,**

wherein said receiver is configured to eliminate multipath channel impairments caused at least by the severely degraded signals (page 12, lines 19-23)**.**

Independent claim 8 reads as follows:

8. (Previously Presented) A method for communication in a wireless communication environment, comprising:

providing a common transceiver with a plurality of antennas configured to operate as a phased array (page 10, lines 13-16)**;**

continuously scanning through the said plurality of antennas (page 11, lines 14-17 and page 22, lines 15-17) **for a substantially fixed period of time** (page 16, lines 12-19) **by connecting each of the plurality of antennas to a receiver** (page 19, lines 14-18) **configured to at least substantially eliminate multipath nulls** (page 12, lines 5-8) **caused at least by severely degraded received signal samples in a substantially stationary wireless**

communication environment (page 13, lines 8-11) **and to impart Doppler modulation onto a received signal** (page 11, lines 25-29)**;**

determining the bearing of the received signal in accordance with a phase thereof (page 13, lines 21-28)**, said received signal containing additional gain**(page 14, lines 5-10, page 20, lines 6-12 and page 21, lines 16-23)**; and**

operating the plurality of antennas as a phased array during a transmit mode(page 10, lines 13-16; page 14, lines 5-10)**.**

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

(ii). The Remainder of the Specification Also Supports the Claims

The Appellants note that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by including the specification citations in parenthesis above the Appellants do not represent that this is the only evidence that supports the independent claims nor do Appellants necessarily represent that these citations alone can be used to fully interpret the claims of the present invention. Instead, the citations provide background support as an overview of the claimed subject matter.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellants seek the Board's review and reversal of the following rejections: (a) claims 1 and 4-7 under 35 U.S.C. §103(a) based on the combination of Bevan et al. ("Bevan"), U.S. Patent 6,489,923 and Feuerstein et al, U.S. Patent No. 6,188,333 ("Feuerstein"); (b) claims 2 and 3 under 35 U.S.C. §103(a) based on the combination of Bevan, Feuerstein and Schuchman et al. ("Schuchman"), U.S. Patent 6,148,195; (c) claims 8-17, 20 and 21 under 35 U.S.C. §103(a) based on the combination of Bevan, Feuerstein and Borras et al.

("Borras"), U.S. Patent 5,303,240 and in further view of Sole et al. ("Sole"), U.S. Patent 6,150,987; (d) claims 10-12 and 14-17 based on Bevan, Feuerstein, Borras, Sole and Official Notice; and (e) claims 18 and 19 under 35 U.S.C. §103(a) based on the combination of Bevan, Feuerstein, Boras, Sole and Schuchman.

VII. ARGUMENTS:

A. The Section 103 Rejections of Claims 1 and 4-7 Based on Bevan and Feuerstein

In the Final Office Action the Examiner acknowledges that Bevan "fails to explicitly teach substantially eliminating multipath nulls" (page 4), as recited in claim 1.

To make up for this deficiency the Examiner relies upon Feuerstein. However, Feuerstein (and Bevan) does not disclose a receiver having direction finding means for determining the bearing of a received signal in accordance with a phase thereof, said received signal containing additional gain.

In the Final Office action (page 2) and Advisory Action (page 2), the Examiner refers the Appellant to a number of excerpts from Bevan that purportedly disclose the claimed receiver that completes bearing determinations using signals that contain additional gain.

However, after reviewing each of the excerpts (and others cited elsewhere by the Examiner in the Office Action) the Appellant did not discover where Bevan states that its receiver completes bearing determinations using a "direction finding means for determining the bearing of a received signal in accordance with a phase thereof, said received signal containing additional gain".

Instead, these excerpts appear to discuss the combination of a direction finding antenna and receiver for correcting errors in bearing estimates "using signal samples successively received at the same antenna" and/or by "injecting

calibration signals into [a] circuit near the antenna....". Nowhere is it stated or suggested that the receiver is capable of estimating a signal's bearing using additional gain.

This is not surprising because it does not appear that the signal errors in Bevan are related to deep nulls or fading; which is the reason why the suggested methods of correcting signal errors in Bevan do not involve a receiver capable of estimating signal bearings using additional gain.

Accordingly, because neither Bevan nor Feuerstein discloses or suggests a receiver that determines the bearing of a received signal in accordance with a phase thereof, where the received signal contains additional gain, Appellant respectfully requests withdrawal of the rejections and allowance of claims 1 and 4-7.

B.) <u>The Other Section 103 Rejections</u>

The Office Action also includes a number of other rejections under 35 U.S.C. §103(a) based on a combination of Bevan and Feuerstein with other references, namely: (a) that claims 2 and 3 are unpatentable over Bevan and Feuerstein in view of Schuchman; (b) that claims 8-17, 20 and 21 are unpatentable over Bevan, Feuerstein, Boras and Sole (and Official Notice); and (c) that claims 18 and 19 are unpatentable over Bevan, Feuerstein, Boras, Sole and Schuchman.

Appellant notes that each of these claims includes a receiver that determines the bearing of a received signal in accordance with a phase thereof, where the received signal contains additional gain or a comparable method. As indicated above, neither Bevan nor Feuerstein discloses or suggests such a feature. In addition, Appellant respectfully submits that none of the additional references discloses or suggests such a feature. Therefore, Appellant respectfully submits that the claims of the present invention would not have been obvious to one of ordinary skill in the art because the combination of

Bevan and Feuerstein with any of the other applied references does not disclose or suggest the subject matter of claims 2, 3 and 8-21.

In addition, the Appellant notes the Examiner's rejection of claims 10-12 and 14-17 based on Official Notice. The Appellant respectfully submits that such a rejection is not sustainable.

These claims set forth specific wireless communication "environments" within which the claimed methods are used. By way of example, claim 10 is directed at a WLAN. Though a WLAN, in general, is well known, a method for determining the bearing of signals within a WLAN as in claim 10 is not. Nor has the Examiner set forth any references describing such a method.

The Appellant respectfully requests that the Examiner either submit an affidavit setting forth sufficient evidence demonstrating how the subject matter of these claims would have been obvious or withdraw these rejections.

Conclusion:

Appellants respectfully request that members of the Board reverse the decision of the Examiner and allow claims 1-21.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (Previously Presented) A wireless communication system, comprising:

a plurality of antennas, configured to operate as a phased array, for use by one receiver;

a scanner adapted to scan through the plurality of antennas to at least substantially eliminate multipath nulls and provide a signal received from each of the plurality of antennas to the receiver and to impart Doppler modulation onto a received signal, wherein one or more of the received signals from the antennas are severely degraded; and

a receiver having direction finding means for determining the bearing of a received signal in accordance with a phase thereof, said received signal containing additional gain,

wherein said receiver is configured to eliminate multipath channel impairments caused at least by the severely degraded signals.

2. (Previously Presented) A wireless communication system according to claim 1; wherein a scan rate of the scanner for scanning each of the plurality of antennas is at least 100 hertz.

3. (Original) A wireless communication system according to claim 1; wherein a scan rate of the scanner for the plurality of antennas is at least 2000 hertz.

4. (Original) A wireless communication system according to claim 1; wherein the plurality of antennas are equidistant from a center point.

5. (Original) A wireless communication system according to claim 4; wherein the plurality of antennas are spaced equally apart around a circumference of a circle formed about said center point.

6. (Original) A wireless communication system according to claim l; wherein the plurality of antennas comprises at least three antennae.

7. (Original) A wireless communication system according to claim 1; wherein the scanner continuously scans and connects each of the plurality of antennae in turn to the receiver for a substantially equal period of time.

8. (Previously Presented) A method for communication in a wireless communication environment, comprising:

providing a common transceiver with a plurality of antennas configured to operate as a phased array;

continuously scanning through the said plurality of antennas for a substantially fixed period of time by connecting each of the plurality of antennas to a receiver configured to at least substantially eliminate multipath nulls caused at least by severely degraded received signal samples in a substantially stationary wireless communication environment and to impart Doppler modulation onto a received signal;

determining the bearing of the received signal in accordance with a phase thereof, said received signal containing additional gain; and

operating the plurality of antennas as a phased array during a transmit mode.

9. (Previously Presented) A method for communication in a wireless communication environment according to claim 8; wherein the wireless communication environment comprises a quasi-stationary wireless communication environment.

10. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment comprises a wireless local area network.

11. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a cordless telephone.

12. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a cordless modem.

13. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a wireless local loop.

14. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a cellular telephone.

15. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a PCS telephone.

16. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a trunked mobile radio system.

17. (Previously Presented) A method for communication in a wireless communication environment according to claim 9; wherein the quasi-stationary wireless communication environment is a mobile satellite communications system.

18. (Original) A method for communication in a wireless communication environment according to claim 8; wherein the step of continuously scanning connects each of the plurality of antennas to the receiver at least 100 times per second.

19. (Previously Presented) A method for communication in a wireless communication environment according to claim 8; wherein the step of continuously scanning connects each of the plurality of antennas to the receiver at least 2000 times per second.

20. (Original) A method for communication in a wireless communication environment according to claim 8; further comprising the step of locating each of the plurality of antennas substantially equidistant from a center point.

21. (Original) A method for communication in a wireless communication environment according to claim 20; wherein the plurality of antennas are spaced equally apart around a circumference of a circle formed about the center point.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.